FQS FORUM: QUALITATIVE SOCIAL RESEARCH SOZIALFORSCHUNG

Volume 22, No. 3, Art. 11
September 2021

# Concepts of Space, Refiguration of Spaces, and Comparative Research: Perspectives from Economic Geography and Regional Economics

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**Key words**: refiguration of spaces; concepts of space; topical space; economic geography; regional economics; comparative research; sociology of space; spatial analysis; internationalization of companies; world trade interdependencies

**Abstract**: Following the concept of refiguration of spaces proposed by KNOBLAUCH and LÖW (2017), in this article I emphasize interfaces for theory building, methods, and comparative research from an economic geography and regional economics perspective. Since the refiguration of spaces offers an abstract frame capable of grasping spatial relations of any order and across various scales, I will discuss the utilization of concepts of space in both subdisciplines by employing a textbook analysis. Moreover, I will include two examples of current economic phenomena where refiguration takes place. Namely, I will analyze the internationalization of companies and world trade interdependencies according to concepts of space, their implication on methods, and comparative research. In my findings, I show that the abstract frame of refiguration of spaces unlocks great potential if applied consistently. Economic geography has a great deal to offer for the micro-foundation in the refiguration of spaces, working with qualitative methods and forward-thinking concepts of space (e.g., relational or topical points of view for comparison). Regional economics allows for progress concerning the macro-foundation in the refiguration of spaces through the increased availability of regional or big data and advanced quantitative methods (e.g., manifold indexes capturing refiguration).

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Forum Qualitative Sozialforschung / Forum: Qualitative Social Research (ISSN 1438-5627)

## 1. Refiguration of Spaces and the Space-Economy Nexus

A fundamental question in spatial sciences is how to conceptualize spaces (MEUSBURGER, 2009). This is all the more true taking the recent call by KNOBLAUCH and LÖW (2017) into account that contemporary processes of intensified circulation involving human beings, things, and technologies have led to a fundamental shift in the understanding of space by means of mediatization, polycontexturalization, and translocalization. This shift can be roughly described by the basic assumption that "space which has been experienced as homogenous in early socialization [...] is increasingly becoming insular" (p.14). [1]

The resulting heterogeneity and therefore complex and multifaceted constitution and synthesis of spaces will be subsumed as the *refiguration of spaces*. My principal objective in this article is to review common conceptualizations of space in the subdisciplines centered around the *space-economy nexus*, namely, *economic geography* (the economic wing of geography) and *regional economics* (the spatial wing of economics), and to expose them to novel concepts of space by using stylized examples with corresponding implications on methodologies and comparative research. It must be noted that there is no consensus about designations and various labels for both subdisciplines and their research streams (e.g., economic geography as proper economic geography vs. regional economics as new economic geography or geographical economics) (GARRETSEN & MARTIN, 2010; MARTIN & SUNLEY, 1996). In a similar vein, a different perspective on refiguration is conceivable as put forward by THRIFT and OLDS (1996), who broached the issue of "re-figuring 'the economic' in economic geography" (p.311), or in more detail by KUJATH and STEIN (2009), who addressed the refiguration of spaces within "knowledge societies" (p.369)[1]. [2]

In this realm, general understandings of spaces should be investigated and reviewed:

- What are essential characteristics of spaces? Different perspectives and metaphors are conceivable, such as spaces as "containers," "batches," "networks," "fields," etc.
- *What is the nature of spaces?* Are spaces physical, cultural, social, political, or economic entities?
- Being rooted in economics, one may wonder *whether spaces are interchangeable, tangible, intangible, or memorable?*
- *How do economic objects, subjects, or practices affect spaces, or do spaces even affect economic objects, subjects, or practices?*
- *Is it scientifically legitimate to relate economic objects, subjects, or practices to certain spaces* (e.g., locations, regions)? Are spaces tied to economic objects, subjects, or practices (or vice versa)? Are they spatially fixed or mobile?
- *Who or what assigns which* meanings *to spaces* (cultural, social, economic)? [3]

1 All translations from non-English manuscripts are mine.

These and other questions, as well as the corresponding concepts of space, have a *decisive effect on the investigation of the spatiality of economies* (AGNEW, 1993; CAPELLO, 2007; COUCLELIS, 1992; HARVEY, 1973; HELBRECHT, 2005; LATKA, 2003; SUWALA, 2014; WARDENGA, 2002). Against this backdrop and in line with this special issue, I will attempt to shed some light on concepts of space utilized in the subdisciplines of economic geography and regional economics in the second section of this article. In Sections 3 and 4, I will expose this contemporary utilization of concepts of space in both subdisciplines towards a pertinent textbook analysis and towards the refiguration of spaces framework that offer opportunities and limitations. In Section 5, I will present two stylized examples of "internationalization of companies" and "world trade interdependencies" by juxtaposing traditional conceptualizations of both phenomena and the added value of employing this new framework in order to comprehend the above-mentioned refiguration of spaces and the resulting, more heterogeneous constitution and synthesis of space. Additionally, I will describe implications for methodologies and comparative research. [4]

## 2. Concepts of Space in Economic Geography and Regional Economics

The origins of both economic geography and regional economics can be traced back to *Produktenkunde [*resource geography] or *wirtschaftliche Länderkunde* [regional geography] and the metric models created by VON THÜNEN, WEBER, CHRISTALLER and LÖSCH (location theory) for the German *Nationalökonomie* [political economy] (CHRISTALLER, 1933; LÖSCH, 1940; VON THÜNEN, 1826; WEBER, 1909). For a long time and at least until the 1970s, two concepts of space in particular were used in the newly forming subdisciplines at that time: namely, space as a physical container (absolute space) and space as an economic location (relative space) (GARRETSEN & MARTIN, 2010; KULKE, 2004; Sections 2.1, 2.2). [5]

In recent years, the theoretical and methodological pluralism in economic geography and in regional economics has led to manifold perspectives on space (Sections 2.3, 2.4), which are no longer based solely on a classic spatial economic understanding of space (e.g., absolute space, location, or place) (CAPELLO, 2009; HASSINK & GONG, 2017; SCHAMP, 2007; SUWALA, 2014). Manifold mono-dimensional conceptualizations—such as political territories, environments, or areas (COE, KELLY & YEUNG, 2007)—and multi-dimensional conceptualizations of spaces (for an overview, see BLOTEVOGEL, 2005)—like *societal space* (ibid.), *matrix space* (LÄPPLE, 1991), *spatial context* (MEUSBURGER, 2009), the Japanese term *ba* [shared space for emerging relationships] (BRINKHOFF, SUWALA & KULKE, 2015), and *trispaces* (PACHURA, 2021)—or the multi-spatial (management) framework (SUWALA, 2021; SUWALA & OINAS, 2012) not only enrich the disciplines, but also lead to arbitrary utilization and confusion at the same time. Since we are far from reaching an agreement with regard to the understanding and utilization of space in both disciplines, I would also like to provide several guidelines. The following

typology comprises four different understandings of space that lead to the contemporary diversity of theories and methods (Sections 2.1-2.4). [6]

### 2.1 Absolute space: Space as a physical container

*Absolute space* reflects conceptions of space introduced by PTOLEMY, COPERNICUS, KEPLER, GALILEI, or DESCARTES and is associated with the metaphor of the *container* (WEICHHART, 1998), where a *decoupling between "space" and "physical objects"* is conceivable (LÄPPLE, 1991). Space obtains an independent structure of existence (substance) beyond these "physical objects" and "is usually represented by a pre-existing, immovable and immutable grid amenable to standardized measurement and open to calculation" (GARRETSEN & MARTIN, 2010, p.142). VON THÜNEN's "der isolierte Staat" [the isolated state] (1826) or WEBER's "Reine Theorie des Standorts" [pure theory of location] (1909) were expressions of this idealized grid as "an apparatus for observing economic forces, such as empty space for observing physical forces" (BRENTANO, 1867, p.14). Absolute space portrays an external delimitation of the research object (container), into which certain objects from the physical-material world (e.g., persons and things) can be inserted (MASSEY, 1999). Due to its independent ontological structure, absolute space is understood as the superordinate complex of objects but without comprising or explaining relationship patterns between these objects (in space) (SUWALA, 2014). [7]

Since *space can be separated from of these objects*, the idea of an "empty space/container" is imaginable. A frequently cited example is an "empty matchbox" that can be filled with objects (EINSTEIN, 1980, p.XVf.). This concept of space comprises the fixed cadaster of Euclidean geometry and most closely corresponds to the contemporary understanding of everyday spaces (BLOTEVOGEL, 2005). Following this concept, *geographische Substanz* [physical objects or geographical compounds] (LAUTENSACH, 1952, p.2) such as mountains, lakes, or agricultural products and raw materials can be documented and deposited into the container, expressing a strong believe in the physiognomically detectable geographical area of the earth's surface. Those involved in methodological debates concerned with this concept mostly circled around the collection of data and information about determining spatial entities (KULKE, 2004). Spatial categories are abstract patterns such as dots, points, lines, areas, or planes (COUCLELIS, 1992). [8]

This concept of space is widely used both in everyday understanding and abstract visualization of spaces in pure mathematical or idealized economic models in general, but also in both economic geography and regional economics as a starting point for investigation in particular. Concerning everyday understanding, the tradition of this concept of space rests on early ideas of economic geography about *Wirtschaftsraum* [economic space] (PREDÖHL, 1934), *Wirtschaftslandschaft* [economic landscape] (PFEIFER, 1928), and *Wirtschaftsformation* [economic formation] (WAIBEL, 1928) from the first half of the 20th century describing the complex structure of observable elements in an "objectifiable" economic landscape. Concerning the abstract visualization of

spaces in pure mathematical or idealized economic models in political economy and regional economics, the aforementioned VON THÜNEN's (1826) "Der isolierte Staat" or WEBER's (1909) "Reine Theorie des Standorts" were expressions of "abstract" spaces in *pure* and *universal* theories. These theories epitomize *universal principles* or *axioms with general validity* de facto detached from any kind of interfering influences. Not surprisingly, VON THÜNEN's theory has been also applied to various other contexts such urban land uses (e.g., ALONSO's general theory of land rent, 1960) or urban sprawl (e.g., SINCLAIR, 1967). In their purest form, they were "a wonderland of no spatial dimensions" (ISARD, 1956, pp.25-26) conceivable also without a spatial or economic allocation of meaning (Section 2.2). [9]

In regional economics, and particularly in Keynesian and neoclassical regional growth theory as well as new economic geography, great progress has been made since the second half of the 20$^{th}$ century in the realm of absolute spaces, also admitted in part by economic geographers (Section 3, textbook analysis). CAPELLO (2007, 2008, 2009, 2011, 2012) distinguished here between two types of absolute spaces, which she called:

- uniform-abstract space based on Keynesian and neoclassical regional growth theory (e.g., Keynesian regional growth theories, NORTH, 1955, or neoclassical regional growth theories, BORTS & STEIN, 1964) with constant returns;
- *diversified-stylized space* based on new economic geography (FUJITA, KRUGMAN & VENABLES, 1999; KRUGMAN, 1991) with increasing returns internal to the firm originating from ideas born within cumulative causation models (KALDOR, 1970; MYRDAL, 1957, increasing returns external to the firm) and endogenous growth models (LUCAS, 1988; ROMER, 1986). [10]

*Uniform-abstract space* comprises spaces where supply (e.g., factor endowment, sectoral and productive structure) and demand conditions (e.g., consumer preferences) are identical within a specific spatial entity/frame (e.g., region), disregarding any economic diversity (CAPELLO, 2007). In the tradition of *Wirtschaftslandschaft* [economic landscape], the observable geographical space is divided into spatial entities of restricted physical size—often matching administrative units for the sake of data availability—and it is assumed to be internally identical and therefore unifiable within a vector of aggregate socio-economic characteristics that can be used in macroeconomic models and theories (CAPELLO, 2008). In other words, the spatial frame—or more accurately, the scale, locale, region, nation—is a mental figure following an administrative, statistical, or other unit for which data are available. It is conceived as a point in space providing a rather abstract punctiform grid ready for calculation (i.e., absolute space) (SUWALA, 2021). [11]

Proponents of the concept of *diversified-stylized space*—for example, in endogenous growth models (LUCAS, 1988; ROMER, 1986) and new economic geography (FUJITA et al., 1999)—are contributing to advancements in the

abandonment of those identical conditions within the region. This applies in particular to the hypotheses of constant returns or perfect competition within a certain spatial entity/frame. The fact that (regional) growth is considered endogenous in these models (in other words, generated by abstract agglomeration economies, stylized in the form of "increasing returns") makes it possible to portray spatial and scalar entities such as regions providing the frame/container as diversified (SUWALA, 2014). At the end of the day, however, this concept of space has no territorial dimension either and is stylized into simple dots in space (CAPELLO, 2007). [12]

Despite substantial novel theoretical progress in the last decades, both sub-conceptions of absolute spaces (uniform-abstract space and diversified-stylized space) are *absent with regard to space per se* and *leave cause and effects to great economic forces*, except that those spaces are understood as superordinate entities, framing elements (scales), and containers depicting imagined regions. Therefore, the following call made by ISARD (1956) 65 years ago still holds true and revealed the great weakness, the *de facto a-spatiality*, of those model families and concepts of space:

> "[M]arkets are assumed to be perfect, one price ruling throughout each of them. Or, otherwise expressed, [...] costs involved in movement within a 'market' are assumed to be zero. In this sense the factor of space is repudiated, everything within the economy is in effect compressed to a point, and all spatial resistance disappears" (p.26). [13]

CAPELLO (2007) affirmed this contemplation:

> "[A]s a consequence, these approaches are deprived of the most interesting [...] interpretation of space as an additional resource for development and as a free-standing production factor. Predominant instead is a straightforward, somewhat banal, view of space as simply the physical/geographical container of development" (p.9). [14]

From a *methodological point of view*, the benefit of this concept of space can be derived by portraying the abstract, in other words, the point-based detection of a modeled and formalized *world filled with objects within a given frame*. Both options below are possible:

- an easily reproducible *description of observable objects within this frame;*
- elaborate methodologies and idealized assumptions that *facilitate comparisons*, *representativity,* and *objectivity* compatible with any kind of big data. [15]

It is possible to detect definite and unambiguous *causal links*, potentially leading to universal axioms. Working with this concept of space over the last few decades, I have seen considerable methodical progress achieved through advanced mathematical models, such as bifurcation (KRUGMAN, 1991), or tools,

such as spatial econometrics (ANSELIN, 1988; LeSAGE & PACE, 2009), together with the ongoing formalization of economic models. The great advantage is that we can apply this concept of space—in particular its *diversified-stylized type*— in both micro- and macro-economic models as per neoclassical tradition (KRUGMAN was awarded a Nobel prize for this achievement in 2008). Without an economic allocation of meaning, however, space is merely reduced to a gap, lacuna, or interstice between two dots or objects. [16]

### 2.2 Relative space: Space as an economic location

*Relative space* can "be understood as a relationship between objects which exists only because objects exist and relate to each other" (HARVEY, 1973, p.13) and is conceivable as a system of *"*Lagebeziehungen [relative positions] and Standorte [locations] of material objects from a particular problem-based perspective" (SUWALA, 2014, p.121). Relative space is concatenate with the views of NEWTON and EINSTEIN and non-Euclidean geometry (GÜNZEL, 2009). In this concept, *space* does not retain independence, but *arises from the structure of the relative position of objects to each other* (LATKA, 2003). This conception is able to *accentuate the importance of locations, relative positions,* and is able to portray *the formation of societal and/or economic realities*. There are "multiple geometries from which to choose, and the spatial frame depends critically on what is being relativized and by whom" (HARVEY, 2006, p.122). [17]

When using the concept of relative space, "space" only becomes an "economic location" when *the observer allocates a meaning to it*. Objects are no longer confined to the absolute space of a Euclidean coordinate system, but rather can be interpreted, depending on the research objective, as *locations on maps with different reference scales as a result of relative positions* (SUWALA, 2014). From an economic perspective, *overcoming distances* is of particular interest as a metric that can be quantified in terms of costs, time expenditure, or vicinity to sales markets, etc. (GARRETSEN & MARTIN, 2010). These ideas are reflected in a series of classic models for single locational decisions made by particular companies (HOTELLING, 1929; LAUNHARDT, 1882; WEBER, 1909) or entire locational systems (CHRISTALLER, 1933; ISARD, 1956; LÖSCH, 1940; VON THÜNEN, 1826). [18]

However, it has to be clarified that these models portray abstract grids of absolute space in their purest form; only through an economic allocation of meaning do punctiforms become locations and obtain relative positions. They are able to provide information on the spatial distribution of economic activities and offer different types of comparison possibilities (on nominal, ordinal, and cardinal scales). *Spatial categories are demarcated territorial units* such as states, (administrative) regions, and cities or their quarters. [19]

Nowadays, in both economic geography and regional economics, space is mainly conceived as relative space (Section 3, textbook analysis). The principal focus is to assign *"space" the meaning of "economic location,"* regardless of whether space is included and rationalized as a resource, an independent production

factor, or an initiator of static and dynamic advantages for firms in various spatial models. In regional economics, CAPELLO (2007) differentiated *relative space* further between:

- "continuous, physical-metric space" (p.4), for example, the classical works of location theory mentioned above (CHRISTALLER, 1933; HOTELLING, 1929; LÖSCH, 1940; WEBER, 1909);
- "d*iversified-relational space*" (CAPELLO, 2007, p.6) with territorial exogenous development theories, such as growth pole theory and sectoral and regional polarization (HIRSCHMANN, 1958; MYRDAL, 1957; PERROUX, 1955), and territorial endogenous development theories, such as industrial districts and innovative milieus (AYDALOT, 1986; MARSHALL, 1890). Please note that CAPELLO's expression of "diversified-relational space" is somewhat misleading here. In my opinion, territorial exogenous development theories utilize only relative space at best. In contrast, within territorial endogenous development theories, whether solely relative or genuine relational space—at least in the typology provided in this article—is involved really depends on the approach pursued and the actual method employed. Therefore, I would instead propose using the term "*diversified-relative space*" here (which will be elaborated in more detail in the following section). [20]

*Continuous, physical-metric space* can be defined in physical distance and whatever metric that can be quantified in terms of costs, time expenditure, or vicinity to sales markets to overcome this distance. In their purest form as mathematical or idealized economic models, these model families operate in absolute spaces; all forms of spatial friction/physical barriers employed to manage this distance can be unified to a distance between two points in space (CAPELLO, 2007). Once an economic meaning is attached applying a specific metric (transportation costs are used most commonly in classic location theory models), points or dots become economic locations. *Points, dots, lines, or surfaces are assigned relative positions*. They can be used to obtain *information on the spatial distribution of economic activities*, on maps as routes, streets, regions, or administrative units (SUWALA, 2014, 2021). Through this allocation of meaning, punctiform production (WEBER, 1909) or consumption markets (ALONSO, 1960; VON THÜNEN, 1826)—for example, dispersed dot sources of raw material supply (e.g., WEBER, 1909) or general demand (CHRISTALLER, 1933)—become *locations*. Therefore, the basic objective behind choosing an economic location is either to minimize costs—for example, (transport) cost minimization between raw material or production site and final market (WEBER, 1909)—or to maximize value—for example, profit maximization by optimizing the spatial distribution of economic activities (LÖSCH, 1940)—in the applied metric (predominantly costs/profits in economic terms). Therefore, it is about relative positions of locations and their "marginal utility relations" with regard to distance (SUWALA, 2021). [21]

*Diversified-relative space* allocates meaning to space "imagined as an economic resource, as an independent production factor [...] as generator of static and

dynamic advantages for firms, and a key determinant of a local production system's competitiveness" (CAPELLO, 2007, p.184). This

> "positioning and mapping of the relative position of objects within an area results in certain locations with different objectifiable characteristics, or more precisely, location factors (e.g., low rents, fast and cost-effective city access, etc.)" (SUWALA, 2014, p.122). [22]

Understood as a generator of static and dynamic advantages for firms, space is imagined to take the form of different *types of agglomeration effects* (e.g., urbanization or localization (dis-)economies) and respective *centripetal forces* in favor of agglomeration or *centrifugal forces* against agglomeration (e.g., spread or backwash effects). These effects and forces are set in motion by initiating or detracting economic entities from locations leading to the attraction or repulsion of other businesses, skilled labor, and capital (HIRSCHMANN, 1958; MYRDAL, 1957). [23]

Physical-metric space and diversified-relative space are considered to allocate meaning to *spaces as economic locations*. However, this concept of space either reduces "*space*" to *physical barriers* (spatial frictions) by means of transportation costs (physical-metric space) or to *self-reinforcing mechanisms of agglomeration economies* (diversified-relative space). The unique distinction between the two concepts is that in diversified-relative space, researchers ascribe economic locations an endogenous role in forming concentration or dispersion processes as heterogeneous entities, while in physical-metric space, they conceptualize space as homogenous containers or black boxes. In both cases, relative space can be used to *portray the distribution of economic locations and certain material economic and social phenomena (e.g., working population) and relate them to each other* (BASCO & SUWALA, 2021). [24]

From a *methodological point of view*, the availability of statistical material for empirical work is a key variable here, since the relative positions (locations) relevant for research questions can be reconciled with the administrative or functional boundaries of spatial units (e.g., districts, federal states, labor market regions) (SUWALA, 2010). This is methodically achieved based on metric and scale-dependent coordinate systems leading to *cause-effect correlations using statistical methods* (MEUSBURGER, 2006) or *visualizations with the help of cartographic and other representation methods* (BENECKE, BRANOVIĆ & DRAUDE, 2008). Organizing structures of certain characteristic spaces (e.g., functional spaces of employment) can be identified and represented (LÄPPLE, 1991; SUWALA, 2010). [25]

However, according to this concept of space, *objects within their relative positions only have external relationships and no autonomous capacity to act* (SUWALA, 2021). Consequently, space cannot be constituted by a single object or location (GARRETSEN & MARTIN, 2010). A serious danger that emanates from this understanding is the reduction of space to the mere relation between economic objects and the resulting *externalization of social, cultural, or political*

*questions* (SUWALA, 2014). Since relative space is imagined to take the form of different types of agglomeration (dis-)economies, it is ultimately about the construction of efficient and effective forms of either concentration (agglomeration economies) or dispersion (agglomeration dis-economies) while optimizing economic locations or locational systems (BASCO, STOUGH & SUWALA, 2021). [26]

### 2.3 Relational space: Space as a social place

Since the 1970s, the subdiscipline of economic geography has served as a gateway between various other disciplines and has adopted manifold theories and methods predominantly from the cultural sciences, sociology, and psychology, making it almost a *Gemischtwarenladen* [general store]. Probably, the most influential concept in this realm is "relational space":

> "There is another sense in which space can be viewed as relative and I choose to call this relational space. It is space regarded in the manner of Leibniz, as being contained in objects in the sense that an object can be said to exist only insofar as it contains and represents within itself relationships to other objects" (HARVEY, 1973, p.13). [27]

Note that authors in both economic geography and regional economics, such as CAPELLO (2007), have sometimes used the concepts "relational spaces" and "relative space" as synonyms. This is, however, by far not the only conflicting terminology between economic geography and regional economics (for other issues, see GARRETSEN & MARTIN, 2010; MARTIN & SUNLEY, 1996; OVERMAN, 2004; SCOTT, 2006). In the following section, I will use the concept of "relational space" in the sense of most authors in economic geography, that is to say, according to HARVEY. [28]

Notwithstanding, CAPELLO's concept of *diversified-relational space* in general, and territorial endogenous development theories in particular—for example, territorial innovation models (MOULAERT & SEKIA, 2003) such as theories on industrial districts (BECATTINI, 1979; MARSHALL, 1890), innovative milieus (AYDALOT, 1986), or learning regions (LUNDVALL, 1992)—could be conceivable as both relative and relational space (depending on the method applied). Whether or not this conception can be called genuinely "relational" is questionable, despite descriptions "as being embedded in economic and social relations influenced by individual economic actors" (CAPELLO, 2011, p.11) clearly pointing toward a relational view. Capturing embeddedness and different types of proximities (e.g., cognitive proximity) in quantitative models, be it in economic geography or regional economics, with dichotomic variables (e.g., 0-1: cognitive proximity with [0] indicating no relation and no cognitive proximity and with [1] indicating a relation based on the fact that two actors attended the same university, for instance, or have a similar educational background, existing in cognitive proximity), might serve as a good approximation for "assumed and imagined relationality" at best but does not substitute a thorough social network and/or ethnographic analysis. [29]

The other model family within CAPELLO's diversified-relational space, which I call "diversified-relative space," includes, for example, models of territorial exogenous development theories, such as growth pole theory (HIRSCHMANN, 1958). These concepts of space work according to a mono-functional, atomistic, substantive conceptualization of relations based on a pre-programmed and largely passive idea of man (SUWALA, 2021). Hereby, *man assumes the passive role of a reference point that has no influence on space, which is defined by relations between different objects that are related to each other* (capital, persons, energy, data, etc.) (MELA, 2008). This understanding clearly points toward relative space. CAPELLO (2012) herself pointed out that, "by looking at the theoretical trajectories followed in regional economics, one of the major tendencies [...] in the field is the need for more realism in sometimes rather abstract conceptual approaches" (p.316). Despite prolonged accusations of being an a-spatial science (CAPELLO, 2011; ISARD, 1956), regional economics offers excellent conditions for comparative and analytical research, partly also with regard to "imagined relationality." In contrast, *relational space*, following HARVEY's (1973) definition, is the *embodiment of all experienceable situational relationships in simultaneous coexistence between potential material and (immaterial) subjects* (STEKELER-WEITHOFER, 1992). The actor is no longer just the reference point (object) observing space from a certain angle but an *active agent (subject), creating and influencing space first hand* (GRAUMANN, 2002). [30]

The *focus on agency* makes it possible to internalize formerly external relations of a social, cultural, political, or economic nature, which were ignored in relative space (LÖW, 2001; WERLEN, 1987). The resulting dialectic recalls earlier works of sociologists who brought ideas about the duality of "structure" and "agency" (GIDDENS, 1984) or "habitus" and "field" (BOURDIEU, 1982 [1979]) in manifold social theories to the fore. This concept of space not only surpasses the rationalist economic agent, but also offers additional degrees of freedom in the actor's intentions. "Economic agency" is thus always "social agency" and does not happen between isolated agents, but rather is embedded in ongoing processes of social relations (GRANOVETTER, 1985). These social relations are characterized by different types of *embeddedness* and represent *interaction* between (active) agents. On this basis, it is possible to assess *trust*, *reciprocity, or power relationships* between agents (SELCUK & SUWALA, 2020). [31]

Hence, relational space was portrayed by contributors as the understanding of *space* as a *social place* or a *network of relationships.* The result is a social place that admits "the distinction between here and there, and it is what allows people to appreciate near and far" (GIERYN, 2000, p.464). Space as a social place is only born through the emergence, formation, and continuous maintenance of a relational network between active agents that allocate meanings to these relationships. *Spatial categories* for the relational understanding of space are *places, ties, or relationships* (SUWALA, 2014, 2021). [32]

Groundbreaking work on integrating relational space into economic geography was carried out by AMIN (1998), BATHELT and GLÜCKLER (2003, 2005, 2011), DICKEN and MALMBERG (2001), STORPER (1996, 1997), and YEUNG (1994,

2005a) and has greatly benefited from the resurgence of a Marshallian type of the aforementioned territorial endogenous development theories (industrial districts, innovative milieus, regional innovation systems). BATHELT and GLÜCKLER (2002, 2011) elegantly summarized *relational space* as *every relational (or social) place, tie (inter-relation), or action (or more precisely: interaction) that can now no longer be considered "objectively," that is to say, isolated from the actual relationships; instead, it is dependent on:*

- the particular context (*contextuality*);
- previous and expected incidents (*path dependency*);
- the specific situation (*contingency*). [33]

All economic action in these places always substantiate social action as well (HELBRECHT, 2005). Constitutive spatial elements of this relational structure can be expressed as *different forms of proximity* (for a discussion of different types of proximities, BOSCHMA, 2005; BRINKHOFF, SUWALA & KULKE, 2012; KNOBEN & OERLEMANS, 2006; TORRE & RALLET, 2005), which SUWALA (2014) referred to as proximity (dis-)economies. This understanding of space corresponds to the metaphor of a *network*—in the sense of a mono- or polycentric system (LATKA, 2003). The centrality of the network depends on the structure of the relationship between the actors and the actors themselves; while a monocentric network has a focal actor who has relationships with all other participants in the network, polycentric networks are characterized by a balanced structure of relationships between the actors (SUWALA, 2006). [34]

This understanding of space has two important *methodological consequences*:

- Methods and indicators of social or structural *network research* (JANSEN, 1999) have found their way into the research of the subdiscipline (GLÜCKLER, 2004; KRÄTKE, 2002; SUWALA, 2006), in which spatial economic agency is carried out and shaped by the formation of reticular structures.
- The actor-oriented perspective shifted the analytical framework predominantly to the *micro- or firm level* (VON FRIELING, 2006), and "*measurement becomes more and more problematic* the closer we move to a world of relational space-time" (HARVEY, 2006, p.124, my emphasis). [35]

All in all, it has to be emphasized that relational space only emerges as a social place through the formation and constant maintenance of a relational network between acting subjects (LATKA, 2003). In the course of time, external relations are internalized by actors and become subjects of study themselves (GARRETSEN & MARTIN, 2010). *Interactions between the actors (as active subjects) thus constitute space* in the first stance and at the same time *allow actors to assign meaning to spaces as social places* (SUWALA, 2014). Since relational space is imagined to take the form of different types of proximity (dis-) economies, finally it is about the *construction of efficient and effective forms of either proximity or distance* while managing social places constituted by economic

relationships of active agents (SUWALA, 2014, 2021). This relational proximity or distance is, however, dynamic since it is bound to agents (IBERT, 2010; KUEBART & IBERT, 2019) and goes beyond just "being there" (GERTLER, 1995) to also "being aware" (GRABHER, MELCHIOR, SCHIEMER, SCHÜßLER & SYDOW, 2018). The mostly intentional awareness is key to the allocation of meaning when establishing these relationships (MERKEL & SUWALA, 2021). [36]

### 2.4 Topical spaces: Space as a cultural landscape

An interesting additional conception of space has arisen from the Japanese philosophy of NISHIDA (1999 [1926]) and found its way into management studies (NONAKA, 1991; NONAKA & KONNO, 1998) and into economic geography (BRINKHOFF et al., 2015; SUWALA, 2014, 2021). Parts of this understanding of space refer to fundamental behavioral features of Japanese society and its predominant organization into small groups, which constitute "protected spaces" (BRINKHOFF et al., 2015, p.14). In those spaces, individuals are indirectly bound to each other via space by means of *individual-space(-individual) relationships*, which LATKA (2003) named "topical relationships" or "topo-centric relationships" (p.228) and which differ from relational (individual–individual) or poly-centric relationships (Figure 1).

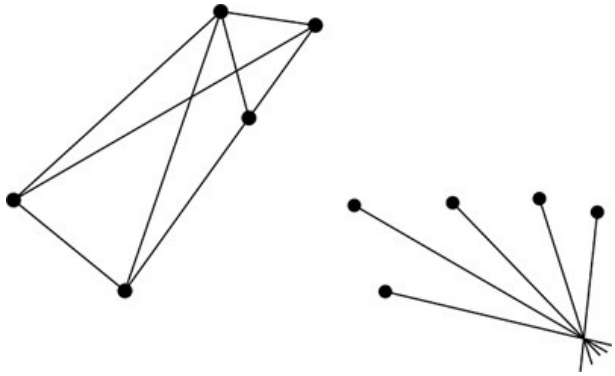


Figure 1: Polycentric relations (left) and topo-centric relations (right) (my elaboration, based on BRINKHOFF et al., 2015, p.14, and LATKA, 2003, p.242) [37]

Although similar to relational space, the spatial metaphor changes from a network to a "*field*" (Figure 1). The field results from the *intersection of a topo-centric network* and can be visualized as an *area or cover traversed by an umbrella* (LATKA, 2003). The field can also be defined as an *atmospherically experienced and sensed environment* (PFISTER, 2007). The field metaphor of space is intended to emphasize that actors both construct space and are accessed through space at the same time, whereby the connecting element is the penetrating element. In contrast to the relational concept of space, for instance, *agents are not only spatially embedded (through interactions), but are also spatially penetrated*. Here, images of oscillations and magnetic or gravitational fields become obvious, which penetrate space nodes (agents) of the field and set them in consonance. Thus, ontologically, *space (i.e., the geographical substance) itself also obtains agency* (LATKA, 2003; PFISTER, 2007; SUWALA, 2014). As

one of the few Western intellectuals, BOURDIEU (1982 [1979]) drew attention to this difference between relational and topic spaces, expressing it as follows:

> "Thinking in field terms requires a reversal of the entire everyday vision of the social world, a vision interested only in those things which are visible [...] In fact, just as Newton's theory of gravity could only be developed in break with Cartesian realism, which recognized no other mode of physical action than the impact, the direct contact, in the same way the concept of the field presupposes a break with the realistic notion, which reduces the effect of the milieu to that of the direct action taking place in an interaction" (p.41). [38]

Topical space is individually perceptible space that is culturally shaped by geographical substance based on the cognitions, ways of thinking, and views of life (in short: experiences) of individuals or groups of individuals (SUWALA, 2014). In this way, space is allotted a cultural meaning through personal and group experiences via space (LATKA, 2003; PFEUFER & SUWALA, 2020; PFISTER, 2007). [39]

The result are spaces that are denominated *cultural-cognitive landscapes*. These landscapes are, however, neither landscapes in the classical sense of *Wirtschaftslandschaft* [economic landscape] (PFEIFER, 1928) nor in the conventional sense comprising objectifiable "visible features of an area including its physical elements, living elements and human elements such as human activity and the built-up environment" (GREFFE, 2010, p.2). Rather, they are mental cultural landscapes, consisting of strong subjective emotions or normatively imposed images of the geographical substance (e.g., certain arrangements of the build fabric, regions, cities) of individuals (HELBRECHT, 2005). All in all, this type of "landscape is a cultural image, a pictorial way of representing, structuring or symbolising surroundings" (DANIELS & COSGROVE, 1988, p.1). Topical space transforms space into culturally determined landscapes by means of perception, interpretation, remembrance, or appropriation (GRAUMANN, 2002; LÖW, 2001; MEUSBURGER, 2009). For instance, the *Aneignung des Raumes* [appropriation of space] unfolds

> "by marking, naming, defining, categorizing, and evaluating space as appropriate or inappropriate, owned or free, by signs, words, rules, regulations, and laws; but also by regular locomotion resulting in paths [...] by building, constructing, and setting; but also by the artistic and scientific representation of space; and finally by overcoming of distance by developing means of communication" (GRAUMANN, 2002, p.104). [40]

Integrating insights from psychology and cultural studies is still somehow a bottom line in both regional economics and economic geography—as social issues like embeddedness within economic agency were bottom lines almost three decades ago (GRABHER, 1993). Despite a "cultural turn" in economic geography (BARNES, 2001; JAMES, MARTIN & SUNLEY, 2007; THRIFT & OLDS, 1996) and manifold novel metaphors or topological propositions representing space—for example, FOUCAULT's "bounded regions" (1966), LATOUR's "networks" (1996), DELEUZE's "flows" (1971), BOHM's "dual locality"

(1980) (BARNES, 2001, p.561)—pointed toward a *"polycentric" economic geography* that emphasized a *qualitative multiplicity of economic spaces* (THRIFT & OLDS, 1996, p.313), the subdiscipline somehow became "lost in translation" (BARNES, 2006). Moreover, the "manifold interactions, translations, performances and mediations between human and non- human actors through which economic networks are (re)constructed" (JAMES et al., 2007, p.12) mostly referred to an "ego-based network metaphor" of spaces with an understanding grounded in practices based on relationality or actor-based theory (BARNES, 2002; FLEW, 2010). Actor-based theory is also underlined by the term "'closeness' *between economic actors* [which] means much more than simply spatial proximity, but must also be defined culturally, in terms of common language, modes of communication, customs, conventions, social norms and trust" (JAMES et al., 2007, p.13). [41]

Interestingly, the idea or the metaphor of the field dates back to MARSHALL's original (1890) notions of "something in the air," or to put it precisely: "When an industry has thus chosen a locality for itself, it is likely to stay there long [...]. The mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously" (p.198). Later "something in the air" was replaced with "atmosphere," a broader term (BELUSSI & CALDARI, 2009, p.337), that expressed advantages derived from an "industrial atmosphere" in which firms are immersed, leading to "more vitality than might have seemed probable in view of the incessant change of techniques" (MARSHALL, 1919, p.287). In a modern interpretation, "industrial atmosphere" was the main ingredient for the so-called creative or innovative "milieu" (BECATTINI, 1979) as underlined by the territorial innovation model family (MOULAERT & SEKIA, 2003). In order to capture and express these "invisible forces" of fields, regional economists and economic geographers introduced manifold concepts as "untraded interdependencies" (STORPER, 1995), "being there" (GERTLER, 1995), "institutional thickness" (HENRY & PINCH, 2001, p.1170), or "surrounding noise" (GRABHER, 2004, p.116), among many others. Although this self-reinforcing mechanism might also be highly applicable to relational concepts of space, the rise of culture and creative industries has led to a renaissance of cognitive, semiotic, and symbolic attributes within spaces (SUWALA, 2014). [42]

In this realm, SCOTT (2001) talked about an "urban landscape" (p.17) as a cultural creative field consisting of a "system of cues and resources providing material for imaginative appropriation by individuals and groups as they pursue the business of work and life in urban space" (SCOTT, 2010, p.121) or dealing as a "stockpile of knowledge, traditions, memories and images" (SCOTT, 2006, p.13). This representation of space embodied a constructed, appropriated, perceived, or experienced environment or a landscape full of traditions, images, or memories in line with a topical understanding of space. Culturally creative individuals have the same effect on these landscapes as culturally creative landscapes have on individuals. These "landscapes" contain certain experiences or landscape-based experiences through mental allocations of meaning (PFEUFER & SUWALA, 2020) and arise from the interplay of symbolic perceptions of physical-material elements (climate, morphology, architectural

features of entire quarters or cities) and socially experienceable spaces full of "cultural amenities (museums, art galleries, theaters, shopping and entertainment facilities) and adjacent industrial/commercial buildings" (SCOTT, 2010, p.124). [43]

In regional economics, (cultural) amenities such as the variety of consumer goods, aesthetics, physical settings, freedom to move, and access to public goods are far from new (ULLMAN, 1954) and have also found their way back into formalized equations when explaining the success of pertinent (urban) spaces (FLORIDA, MELLANDER & STOLARICK, 2011; GLAESER, KOLKO & SAIZ, 2001). A pure amenity was understood as a "non-produced public good such as weather quality that has no explicit price" (GYOURKO & TRACY, 1991, p.775). In contrast to economic geography, amenities acquire objectified properties of spaces, for example, measured according to January temperature or precipitation —later linked to aggregated (consumer) preferences. Some called them "non-market interactions" (e.g., happiness, climate) (FLORIDA, MELLANDER & RENTFROW, 2013; GLAESER, 2000). All of this builds on the basic assumption of (neo-)classic theory that people maximize utility, not income, and that utility equals income plus amenities (CLARK, LLOYD, WONG & JAIN, 2002). [44]

Although there are emerging approaches toward a culture-based (or experience-based) understanding of spaces (KUJATH & STEIN, 2009) or an integration of personal traits of entrepreneurs into regional cultures (BELLGARDT, SUWALA & KULKE, 2021; FRITSCH, OBSCHONKA & WYRWICH, 2019), there is no coherent and crucial body of work in both subdisciplines that emphasizes topical spaces. Despite recent developments, most researchers use rather conventional methodologies (e.g., cultural determinants), relational imperatives (e.g., cultural practices and individual-individual-social relations), and/or the availability of regional data sets to portray those findings rather than dealing with the nature of such an understanding of space. While being a very interesting approach, only a few methodologies (in part from phenomenology, psychology, and philosophy) have been reassimilated into regional economics or economic geography (BARNES, 2002; BRINKHOFF et al., 2015; GLAESER, 2004; HUGGINS & THOMPSON, 2019). [45]

This fact is even more interesting since early influence from the three "p" disciplines mentioned above found their way into the subdiscipline under the heading of behavioral (economic) geography (DICKEN, 1971; PRED, 1967). Substantial building blocks in the advent and development of behavioral geography represented a growing interest in the spatial dimensions of psychological, social and other approaches of human decision making and behavior (GOLLEDGE & TIMMERMANS, 1990, p.57). Some of those early approaches mirrored elements of topical spaces where "decision space can be thought of as a corporate mental map which embodies the whims, prejudices and standing of each member of the management team that plays any part in the formulation of investment, and hence location, decisions" (TAYLOR, 1975, p.322). At the same time, "the ensuing behavioural geography, however, was epistemologically or methodologically no radical departure from the preceding spatial analysis. The decision-maker was still an a-social, atomistic location

manager, cut off from the social and cultural surroundings" (STRAUSS, 2008, p.140). [46]

## 3. Spatial Concepts in Economic Geography and Regional Economics in Theory and Their Utilization in Conventional Textbooks

In summary, a possible typology might comprise *four different spatial understandings (abstract/universal, economic, social, cultural/cognitive)* that lead to the contemporary diversity of theories and methods in both subdisciplines. In this realm, I propose space to be conceived as a *universal container* (absolute space), *economic location* (relative space), *social place* (relational space), or *cultural landscape* (topical space) (Figure 2, see also COUCLELIS, 1992; HELBRECHT, 2005; LATKA, 2003; SUWALA, 2014). [47]

Interestingly, these concepts of space—with the exception of the concept of the universal container—retain their functions only if *agents* (passive or active) *allocate them meaning* as economic, social, or cultural entities (HELBRECHT, 2005). In addition, universal/absolute space can be imagined as an independent structure of existence, as a reality, or as a substance (HARD, 2003); moreover, topical space comprises both an independent structure of existence (ontology) and is shaped by a cultural-cognitive allocation of meaning (epistemology) (SUWALA, 2021).

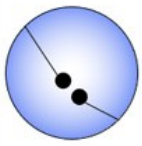
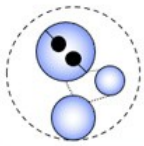
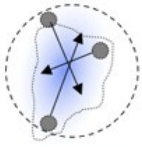
| conceptions of space | absolute space | relative space | relational space | topical space |
|---|---|---|---|---|
| visualized model |  |  |  |  |
| metaphor | container | batch | network | field |
| term | space | location | place | landscape |
| categories | points, dots, lines, surfaces, planes | relative positions, routes, streets, in regions or administrative units | relations, ties, proximities | landmarks, paths, icons |
| relations | no relation | marginal relations | mono- or polycentric relations | topocentric relations |
| philosophy | Ptolemy | Newton | Leibniz | Nishida |
| allocation of meaning | no, just abstract and universal | economic | social | cultural |
| re-figuration of spaces | distribution | factors | resonance | consonance |

Figure 2: Conception of space in economic geography and regional economics and implication for *refiguration of spaces* (my elaboration, based on SUWALA, 2014, p.131) [48]

Referring to the four conceptions of space as an abstract container, economic location, social place, or cultural landscape, I highlight the following *main differences*:

1. While absolute and relative space tend to reflect *structures of spaces* (= *space determinism*) under a non-existent or passive involvement of agents, relational space accentuates the *construction of spaces* (= *space voluntarism*) by active agents. Topical space is a hybrid that allows for both perspectives of spaces and agents as active ingredients that are mutually dependent and that interpenetrate each other (= space determinism and space voluntarism).
2. Accordingly, absolute and relative space refer to spatial structures/frames for agency, while relational space emphasizes agency *per se* to form spaces. In other words, the first two concepts are *space-centered*, while relational space is *actor-centered*. Topical spaces attempt to connect both perspectives. Within the topical concept, space is constructed by agency directly connected to space, while relational space is created by actions between agents. Thus, both the independence and effects of space on agents are conceivable within a topical understanding. [49]

While the debate delineated so far is mainly of a theoretical nature, it is unclear whether these concepts of space are really utilized in the subdisciplines. In order to obtain a rough overview of "common knowledge" and utilization of those concepts in both regional economics and economic geography, I have analyzed eight contemporary German and English university-level textbooks—four on regional economics, two in English and two in German; four on economic geography, two in English and two in German—published after the year 2000. The textbooks were purposefully selected based on a plausible choice of scripts where explicit statements were made with regard to concepts of space. This is by far not a representative sample of textbooks in both subdisciplines, but rather is based on the following sampling rationale: [50]

Neither *older textbooks* (the publication date of the first edition is always specified) on regional economics (KRÄTKE, 1995; MAIER & TÖDTLING, 1992; MAIER, TÖDTLING & TRIPPL, 1996; RICHARDSON, 1969; TEMPLE, 1994) or economic geography (HAYTER, 1997; LLOYD & DICKEN, 1972; SCHÄTZL, 1978) nor *handbooks* or *edited volumes* (BRÖCKER & FRITSCH, 2012; CAPELLO & NIJKAMP, 2010; CLARK, FELDMAN, GERTLER & WÓJCIK, 2018; LEYSHON, LEE, McDOWELL & SUNLEY, 2011; MARTIN & SUNLEY, 2008; NIJKAMP, 1987) were taken into account since they either do not represent the "state of the art" anymore or are too diverse (due to different authors) to identify a common thread. *Textbooks* (despite newer publication dates) with a special perspective, such as institutional economic(s) (geography), environment economic(s) (geography), critical economic(s) (geography), political economic(s) (geography), systems-based economic(s) (geography) (BARNES & CHRISTOPHERS, 2018; COMBES, MEYER & THISSE, 2008; HAYTER & PATCHELL, 2011; MacKINNON & CUMBERS, 2007; STAUDACHER, 2005) were also left out because of different structural logics and motifs. [51]

The following *textbooks*—despite newer publication dates—were not included in the analysis (Table 1), although they fulfill the above-mentioned criteria (as the author is more familiar with the ones presented); notwithstanding, they were

examined and found roughly in line with the conclusions drawn from the substitutes/ones analyzed (regional economics: SCHÖLER, 2005; STÖRMANN, 2009; economic geography: BRAUN & SCHULZ, 2012; HAAS & NEUMAIR, 2007; PALME & MUSIL, 2012).

| Economic Geography | | | |
|---|---|---|---|
| | Absolute space | Relative space | Relational space |
| BATHELT and GLÜCKLER (2002, 2018a) | X | XX | XXX |
| KULKE (2004, 2017) | X | XXX | X |
| COE, KELLY and YEUNG (2007, 2019) | X | XX | XX |
| WOOD and ROBERTS (2011) | X | XX | XX |
| | | | |
| Regional Economics | | | |
| | Absolute space | Relative space | Relational space |
| McCANN (2001, 2013) | XX | XX | |
| CAPELLO (2007, 2016) | XX | XX | (X) |
| ECKEY (2008) | XX | XX | |
| FARHAUER and KRÖLL (2013, 2014) | XX | XX | |

Table 1: Contemporary textbooks on economic geography and regional economics and understandings of conceptions of space (key: XXX = motif of the book, XX= key part, X = minor indications; the publication date of the first edition and last edition to date is always indicated) [52]

A first general result of this textbook analysis is that *only a few spatial terms* such as "location," with an explicit economic allocation of meaning, and/or "regions," both in a relative understanding, *are more or less employed consistently*. For the most part, manifold spatial terms like "places," "landscapes," "environments," or "territories" carry mixed, arbitrary, and sometimes even conflicting meanings. A second general result reveals that most textbooks on economic geography and regional economics still mostly utilize a *scale-based partition* between location theories (a mostly micro-economic perspective) and regional growth and development theory (a mostly macro-economic perspective) as basic building blocks (CAPELLO, 2007; ECKEY, 2008; FARHAUER & KRÖLL, 2013; KULKE, 2004; McCANN, 2001). [53]

Textbooks on *regional economics* are relatively homogenous with regard to concepts of (absolute and relative) space (Table 1), without really elaborating too much on the nature of spaces in general (with the notable exception of

CAPELLO, 2007). At the same time, the textbooks are focused either on policy implications (ECKEY, 2008; McCANN, 2001) or methods (FARHAUER & KRÖLL, 2013) with manifold numerical underpinnings of empirical examples and elaborated formal remarks. The underlying scientific philosophies comprise (neo-)positivism, principles of regularity, and equilibrium thinking with a strong quantitative focus, accelerated by progress in methods (FARHAUER & KRÖLL, 2013) or the availability of advanced fine-grained regional and big data (e.g., the German Socio-Economic Panel data set). Despite abstract/universal conceptions of space, both analytical and comparative research are highly applicable. [54]

Textbooks on *economic geography* are generally more diverse in utilizing concepts of space, with the majority still focusing on relative concepts of space (Table 1). However, they are more open to both absolute space as the subdiscipline's legacy and relational conceptions as a novel perspective on space. In general, conceptions of space are also not thoroughly covered (with the exception of BATHELT & GLÜCKLER, 2002, who introduced their relational perspective against the absolute/relative understanding). Since critical realism and the principle of contingency entered the scene as novel scientific philosophies, traditional "regional economics" quantitative methodologies are often combined with qualitative case studies, resulting in simplified and stylized figures open to a hands-on-approach and real-world visualizations. This conceptual and methodological openness occurs at the expense of comparative research. Case studies are at risk of becoming descriptive, instead producing (isolated) and non-transferable typologies when pertinent insights are mirrored against the state of art in the subdiscipline. [55]

Finally, it is possible to observe that *topical spaces*, in an economic sense of space as cultural-cognitive landscapes, are only, if at all, a *side dish* in contemporary textbooks (MacKINNON & CUMBERS, 2007, Section 2.5; BARNES & CHRISTOPHERS, 2018, scattered throughout the book pp.92-94, p.100). Integrating insights from psychology and cultural studies is still somehow a bottom line in both regional economics and economic geography. [56]

## 4. The Notion of a Refiguration of Spaces

In order to specify what is meant by *refiguration of spaces*—a term coined by KNOBLAUCH and LÖW (2017), amongst others—it is necessary to take a closer look at both "refiguration" and "spaces," as well as their interplay. According to KNOBLAUCH and LÖW, refiguration is considered as a preliminary metaphor expressing multiple processes of circulation involving human beings, things, and technologies that give rise to a fundamental shift in the understanding of space. This shift can be roughly described by the basic assumption that "space which has been experienced as homogenous in early socialization [...] is increasingly becoming insular" (p.14). [57]

Therefore, the notion of (re-)figuration has to be very abstract in order to grasp spatial relations of any order and across various scales in the first stance, while perpetuating some rudimentary spatial categories such as locality or place

(COULDRY & HEPP, 2016). *The insularization of space is a result of three interrelated processes* (KNOBLAUCH & LÖW, 2017):

- *Mediatization* encompasses the incorporation of new media and technologies into communicative structure and agency, whereby both present and absent locations can be interactively affected.
- *Polycontexturalization* entails diverse institutional orders or frames occurring simultaneously at one location.
- *Translocalization* refers to recurrent coupling of different locations in conjunction with an increase in the semantic content of the current individual location. [58]

In other words, the *constitution of space* is becoming increasingly heterogeneous, and *spatial synthesis* is multiplying through

- novel opportunities of affecting spaces;
- changing relations of spaces; and
- the increased connectedness of spaces. [59]

The resulting refiguration of spaces, however, is not by any means a one-way street; rather, it includes both tendencies toward heterogeneity, boundaries, and heterarchies, as well as territorially based, centralistic, and hierarchically scaled entities (ibid.). These ideas break definitively new ground when they are systematized and aggregated, but how do they differ from the contemporary conceptualization of terms such as "globalization" (merely conceptualized in relative space) or "embeddedness" (merely conceptualized in relational space)? KNOBLAUCH and LÖW, indeed, provided several direct or indirect hints. For instance, *polycontexturalization* means that different institutional orders or frames occur simultaneously in space. [60]

*Translocalization* can be described—and here KNOBLAUCH and LÖW referred to GIDDENS (1991)—as more than just "the lifting out of social relationships from local contexts and their recombination across indefinite time/space distances" (p.242). Rather, it represents a complex process in which social units (e.g., families, neighborhoods, and religious communities) are not only embedded in places but are also exposed to circulation linking different places. Here, spaces have a tendency to be subjected more frequently to conflicts between individuals, networks, and organizations (KNOBLAUCH & LÖW, 2017). [61]

Economic geographers partly touch on these ideas in recent studies investigating, for instance, the spatiality of migrant economies where they brought the dual, mixed, or multiple embeddedness of migrant entrepreneurs conceptualizing different embeddings at once to the fore (BASCO, 2017; KLOOSTERMANN & RATH, 2018; MÜLLER & FRANZ, 2019; SELCUK & SUWALA, 2020). These ideas were studied in depth by KLOOSTERMANN and colleagues (KLOOSTERMANN & RATH 2018; KLOOSTERMANN, VAN DER LEUN & RATH, 1999). For some time, others have talked about "place polygamy

—towards globalization in personal life" (BECK, 2000 [1997], p.72) in this realm; these ventures are compatible with some ideas involving the refiguration of spaces. I will elaborate further on this link in Section 5.1 with regard to the internationalization of companies. [62]

Moreover, KNOBLAUCH and LÖW (2017) linked the process of *mediatization* (in particular, the digitalization and intra-activization of communicative action) and its effects on how agency is spatially connected to globalization. According to both authors, "the notion of globalization, however, implies a reference to scales (local, regional, national, global) which suggest a distinct and fixed spatial order and an increasing relevance according to size (i.e., the increasing relevance of globality)" (p.15). [63]

Since KNOBLAUCH and LÖW disagreed on the fact that spaces are systems of linear arrangement, the notion of translocalization was suggested. This concept stresses the fact that in a highly borderless and interconnected world (a notion that refers at least partly to advanced mass communication), the intensified circulation of subjects and objects—some fungible and tangible, but first and foremost intangible and memorable (PINE & GILMORE, 1999; PFEUFER & SUWALA, 2020)—produces intentional and (non-)intentional consequences for other spaces and on various scales. Therefore, supplementary selective and reflexive forms of belonging to spaces are possible (KNOBLAUCH & LÖW, 2017). I will explain this link in more detail in Section 5.2 with regard to world trade interdependencies. All in all, one fundamental message is that

> "as space is not just an accidental aspect but a basic feature of sociality, spatiality is central to the analysis of refiguration. In fact, we take space to be the major form in which we can observe the refiguration of contemporary societies" (p.11). [64]

## 5. Space-Economy Applications for the Refiguration of Spaces Across Different Scales

In order to shed some practical light on the theoretical/methodological elaborations so far, I will illustrate how concepts of space are utilized and can be linked to research in economic geography and regional economics by emphasizing two examples of meaningful contemporary (economic) phenomena across different scales:

- the internationalization of companies (micro-economic perspective);
- world trade interdependencies (macro-economic perspective). [65]

I will interpret both along the lines of the presented conceptions of space and by adding ideas of refiguration of spaces. My intention is also to provide interesting insights and perspectives or to at least assess possibilities for comparative research. I chose these examples on purpose as they illustrate archetypal topics and the raison d'être in both economic geography and regional economics. [66]

### 5.1 The micro-economic perspective: The internationalization of companies

Location theory—in other words, modeling the location choice of firms—gives both economic geography and regional economics their scientific-disciplinary identity and constitutes one of their key theoretical-methodological topics (CAPELLO, 2011; KULKE, 2004, SUWALA, 2018). This theoretical paradigm was founded by researchers in microeconomics, and adopted a traditionally static approach using absolute (grid open to calculation) and relative space (points that gain meaning as relative positions and economic locations) (SUWALA, 2014). If the idea of "location choice" is developed further during the expansion of a firm in the home region or beyond (in other words: internationalization), the problem becomes more complex, multi-locational, challenging, and is compatible with ideas of refiguration of spaces. *Multilocality*, in particular, embraces the idea of the need for *mediatization* (communication between locations), *polycontexturalization* (multiple framing of locations), and *translocalization* (multiple exposure of locations). Regional economists and economic geographers have approached these developments in different ways. [67]

In order to grasp the multiple spatial and economic logics and patterns of internationalization, *regional economics* reacted with

- *revised (theoretical) assumptions* like heterogeneous firms or agglomeration economies in analytical mathematic models (BALDWIN & OKUBO, 2006; OTTAVIANO, 2010); and
- *advanced methodologies* by designing sophisticated indices. [68]

With regard to *revised and relaxed assumptions*, one could put it as follows: Models of contemporary regional economics allow for much more differentiated input factors—in other words, special locational factors such as heterogeneous firms (e.g., firms of different sizes or working in different industries) or agglomeration economies (e.g., favorable effects induced, for example, by reducing the minimum average cost of production through higher output in one factory). These special locational factors extend beyond "general factors [...] those that affect all industries, and are therefore *not* dealing with the 'pure theory of location'" (in a similar vein, PREDÖHL, 1928, p.386, as he referred to WEBER's pure theory of location). In doing so, regional economists are now able to model and explain different idiosyncrasies and trajectories of internationalization (of course with the consequence that the complexity and the number of different models applied rises significantly) (GAUBERT, 2018; OKUBO, PICARD & THISSE, 2010). [69]

With regard to *advanced methodologies*, *sophisticated indices* have been designed by researchers to understand at least *polycontexturalization* or *translocalization.* Just to mention two examples of such indices:

- The "Internationalization Index" (II) is calculated as the number of foreign affiliates divided by the number of all affiliates of a firm

- The "Geographical Spread Index" (GSI) is another measure and is calculated as the square root of the Internationalization Index (II) multiplied by the number of host countries (UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT, 2018) [70]

*Regional economists* have also been using *more detailed regional and company databases*, captured, for example, by the "Transnationality Index" (TNI) in order to characterize the inter- or transnationalization of firms. The TNI is calculated as the arithmetic mean of the following three ratios:

- the ratio of foreign assets to total assets;
- the ratio of foreign sales to total sales;
- the ratio of foreign employment to total employment, where "foreign" means outside of the firm's home country (ibid.). [71]

For these reasons and in this realm, regional economists have mostly operated and been forced to operate with relative concepts of space bearing in mind that one day it might be possible to access an exact, pure, or universal model in abstract space. *Economic geographers* have mostly developed and employed (or domesticized) models of adjacent disciplines such as international business studies (DUNNING, 1980; HÅKANSON, 1979; JOHANSON & VAHLNE, 1977). These models were predominantly descriptive, stage-based, real-world approaches, representing an attempt to comprehend the expansion or internationalization of firms (CHAPMAN & WALKER, 1987; DICKEN 1976; HAYTER & WATTS, 1983). These approaches were either based on *atomistic, functional, and factor-based explanations*, describing reasons for going abroad grounded on ownership, internalization, and locational attributes (DUNNING, 1980), or they approached internationalization by means of *stage models by aggregating empirical case studies and building "common knowledge"* about observed favorable location conditions. The rationale behind these models was to optimize locations of multi-plant firms by minimizing transportation costs or liabilities of foreignness (SUWALA & KULKE, 2017). In a more general sense, the idea is to balance agglomeration (dis-)economies either through concentration or dispersal (BASCO & SUWALA, 2021; SUWALA, 2014). Scholars secured a certain degree of comparability between cases with this common knowledge by applying those models to novel case studies and an on-going theoretical reformulation of models. However, although common knowledge rested on simple methodological conceptions of the relative position of locations in space that were somehow tied by linkages, numerous new scalar categories (e.g., domestic, transnational, multinational, global) were introduced to characterize such multi-locational ventures (DICKEN, 1976). The concept of space used was predominantly relative, merely portraying descriptive linkages between locations of multi-plant firms (SUWALA, 2021). [72]

The rise of *multi- or transnational corporations* (MNC/TNC) *and their respective intra- and inter-firm networks*, however, called for more advanced approaches that also take into account knowledge flows, innovation, and learning within those

economic linkages by investigating genuine relationships therein (KULKE & SUWALA, 2016). One of the approaches brought by economic theorists to the fore is attempting to explain these increasingly complex relationships within and between firms (networks as a consequence of internationalization, among other things) is transaction cost theory (COASE, 1937). Transaction costs are costs associated with the determination, transfer, and enforcement of rights to dispose between economic entities while exchanging services (WILLIAMSON, 1975). Regional economists and economic geographers introduced space as a further variable when looking at these costs (SCOTT, 1986, 1998); the basic assumption was that the concentration of and proximity between firms can lead to a decrease in these costs (SUWALA, 2006). In this case, "we can think of production [...] as a (spatial) network or complex of transactions" (SCOTT, 1986, p.219). Optimizing costs within this (spatial) network is nothing more than balancing internal and external transactions within and between firms. This results in different types of organizational structures (e.g., hierarchy (firm), market) in the original sense, or different types of organizational structures in space (e.g., spatial entropy, clusters) (SCOTT, 1986, 1998). Although ideas of spatial transaction costs intermittently led to improved explanations for these complex linkages, they were unable to satisfactorily explain the nature and further dimensions of those relationships (e.g., communication, power, reputation, openness, technology, or knowledge) within and between networks beyond a purely cost-based (economic) consideration (KULKE, 2004; SUWALA, 2006). In this regard, SCOTT (1986) suggested "develop[ing] explanatory frameworks that are fully sensitive to the combined effects of social structure and contingent historical events in the emergence of geographical realities" (p.228), pointing to a relational understanding of space. [73]

This direction was intensified, in particular, by economic geographers from the early 1990s on, who emphasized the aforementioned idea that *economic agency is thus always social agency* and does not happen between isolated agents but rather is embedded in ongoing processes of social relations (GRABHER 1993; GRANOVETTER, 1985). In other words, social relations are characterized by different types of *embeddedness* and represent *interaction* between (active) agents, even more so within the context of internationalization. These ideas centered around embeddedness and the importance of context for the expansion of firms, internationalization decisions, or internationalizing value chains (DICKEN, KELLY, OLDS & YEUNG, 2001; OINAS, 1997). They slowly opened black boxes of linkages (SUWALA & OINAS, 2012). [74]

Very illustrative examples in this realm include the *internationalization of firms in the knowledge-intensive service sector* (e.g., consulting and law firms) (GLÜCKLER, 2004; PEIKER, 2017). The decision to go abroad is now conceptualized as a *relational market selection* and goes beyond the sole consideration of atomistic or isolated locational factors when internationalizing (e.g., foreign market size, sales opportunities), which accentuates the relative positions of locations (relative space) and their particularities. This (relational) selection of markets abroad can comprise various types of relational internationalization—for example, reactive client-following and piggybacking

(GLÜCKLER, 2004; PEIKER, 2017; PEIKER & SUWALA, 2015; PEIKER, PFLANZ, KUJATH & KULKE, 2012; SUWALA, 2021). Let us consider these two types. "Reactive client-following" is a relational market selection mode characterized by initiative clients who request that firms expand their activities to foreign markets either where the client is already active or intends to start a venture in the near future (PEIKER & SUWALA, 2015). Piggybacking describes a relational market entry mode where firms access a market on the back of strategic partners or collaborators. Those partners are crucial in the beginning when the entering firm requires additional capacities or competence to serve new clients (GLÜCKLER, 2004). In both cases, internationalization decisions are not isolated top-down decisions implemented in executive council meetings by a few strategists, but rather they are decisions grounded in the various *embeddings* and connected to *interactions* within the firm and agents' networks as described in concepts such as relational and structural embeddedness (HESS, 2004). At the same time, generalizations and comparisons became increasingly difficult as case studies proved to be highly contingent and path-dependent (see ideas for a relational research design in economic geography by BATHELT & GLÜCKLER, 2018b, p.189f.). [75]

The same holds true for contemporary approaches such as *management geography*. Researchers in this tradition have constructed *internationalization decisions as a multi-spatial management task based on active agents balancing different (relative, relational, and topic) spatialities* (BASCO & SUWALA, 2020; JONES, 2018; SCHLUNZE, BABER & AGOLA, 2012; SUWALA, 2014, 2021; SUWALA & OINAS, 2012; SUWALA & SCHLUNZE, 2019). In doing so, management geographers attempted to explain managerial agency across and within spaces when firms have to decide about their appropriate locations, local or international operations, strategic relationships with suppliers and customers, or internal and external images (BASCO & SUWALA, 2020, 2021; SUWALA, 2021). All these activities point to a multi-spatial coordination task in which the management has to balance and optimize the different logics and self-reinforcing mechanisms within the different spatialities (PACHURA, 2021; YEUNG, 2005b; SUWALA, 2014). The concepts of space align with the understandings of economic spaces as locations, social spaces as places, and cognitive spaces as cognitive landscapes (Sections 2.2-2.4). Managers or corporate decision makers have to carefully deal with those economic, social, and cognitive spaces, where each can be interpreted as a continuum between different types of spatial self-reinforcing mechanisms: (dis-)economies arising from concentration/dispersal (in a relative sense), interaction/isolation (in a relational sense), and perception/agnosia (in a topical sense). In other words, the objective is to analyze the management of economic, social, and cognitive spatial domains in multi-scalar configurations influencing corporate performance through concentration, interaction, and perception. Let us shortly elaborate on the *economic, social, and cognitive spatial domains*:

- *Economic space is understood as location.* Space retains economic meaning as a location by the simple fact that expenses for transportation and transaction accrue over distance; hence, a particular location is relative (against other locations) and spatial costs (e.g., transaction and transportation) can be calculated (SUWALA, 2014). Within this domain, the manager has to address different problems related to the location such as the locational strategy of the firm, the optimal spatial decision regarding location factors, or objectifiable reasons for internationalization expressed, for example, as liabilities of foreignness or otherness (SUWALA & KULKE, 2017). Managerial tasks can be summarized by optimizing agglomeration economies within the firm in terms of internal and external economies. Internal economies include economies of horizontal integration, lateral integration, and vertical integration, while external economies are related to localization economies, urbanization economies, and activity-complex economies (NAKAMURA, 2018; PARR, 2002). On the contrary, exceeding a particular firm and/or location size may lead to agglomeration (dis-)economies like congestion, environment fraud, or excessive location costs. What matters is the optimization between concentration and dispersal of economic activities (SUWALA, 2021).
- *Social space relates to places.* Places are constructed through social, ego-centric relations between individuals; they are, therefore, relational. In other words, "social space involves the network of functional relationships and social interactions" (TRIP & ROMEIN, 2010, p.5). Places are about context and they can only be brought to life through the social and relational embeddedness of actors. Within this domain, the manager has to balance family relationships, firm-internal and firm-external ties (suppliers, customers), and friendship networks (SUWALA, 2021) to provide solutions to the fundamental problem of coordinating relationships between economic actors (BOSCHMA, 2005). Those relationships are characterized by different types of proximities—for example, spatial, cognitive, organizational, institutional, and cultural proximities (KNOBEN & OERLEMANS, 2006). Proximities may become proximity economies when fueled by power, trust, and reciprocity resulting in place-based knowledge and learning processes—by means of face-to-face meetings, buzz, noise, etc. (SUWALA, 2021). On the contrary, proximity (dis-)economies may arise as consequences of under- and over-embeddedness and lock-out or lock-in of actors in places (GRABHER, 1993; HASSINK, 2010). This involves establishing and orchestrating the interaction and isolation of economic actors.
- *Cognitive spaces are visualized here by means of landscapes*. Landscapes are the result of the topo-centric relations between individuals and space. Individuals are bound together not only by (ego-)relations among themselves (relational view) but also by topical-relations directly with space. This creates the metaphor of a topical field where individuals collectively share similar cognitive images, spatial mindsets, and particular atmospheres without necessarily knowing each other personally (BRINKHOFF et al., 2015). Within this domain, the manager designs firm values, a charter, or a company logo in order to establish a long-lasting corporate culture reinforced by manifold

images or material icons where the environment or workplace design plays a crucial role. It is about a "stockpile of knowledge, traditions, memories and images" (SCOTT, 2010, p.123), which helps to create (mutual) atmospheres to stimulate pertinent perceptions and holistic experiences. They can result in experience economies (e.g., entertainment, educational, aesthetic, and escapist experiences (SUWALA, 2014)) depending on the intensity of attention and memorability of extraordinary events and may arise from overlapping perceptions (LANGE, POWER & SUWALA, 2014; PFEUFER & SUWALA, 2020). In contrast, experience dis-economies arise from a plethora of impressions, overstimulation of senses, or excessive immersion, among other things. Therefore, it is necessary to strike a balance between perception and agnosia within experiences of economic actors (SUWALA, 2021). [76]

Each of these spatialities comprises managerial roles such as concentration roles as a locational explorer (relative view, economic space, concentration), interactional roles as an embedded gatekeeper (relational view, social space, interaction), and informational roles as an experienced preceptor (topical view, cognitive space, perception). Taken together, space or place leadership with managerial/corporate spatial responsibilities is conceivable (ALBERS & SUWALA, 2021; SUWALA & ALBERS, 2020) (Figure 3).

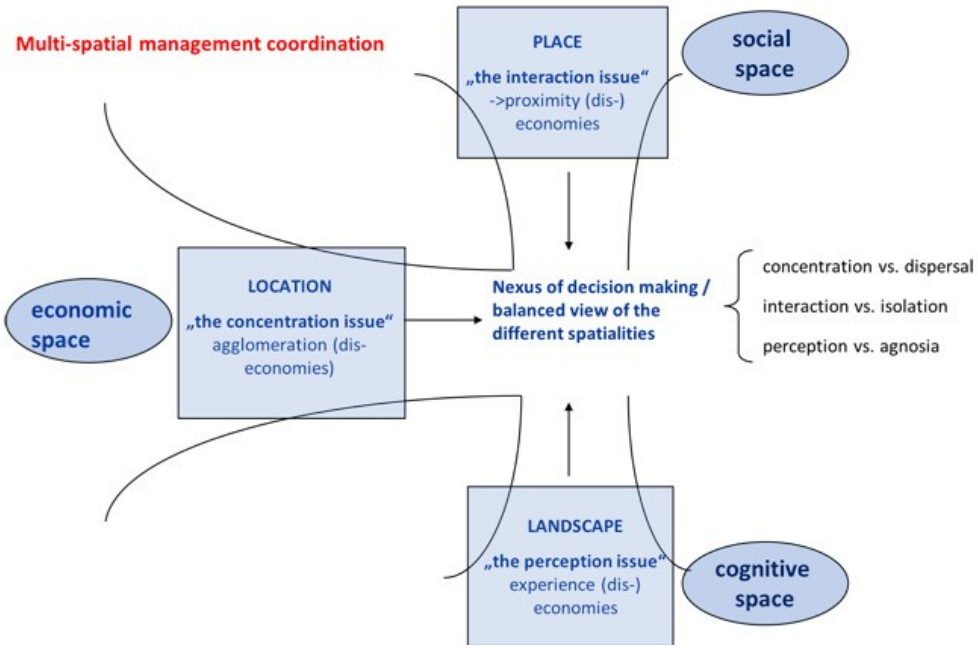



Figure 3: Multi-spatial management framework (my modification, based on SUWALA & OINAS, 2012, p.7) [77]

Researchers who pursued ideas from the refiguration of space framework opened novel perspectives in both cases—for example, internationalization of knowledge-intensive firms, multi-spatial management framework (BAUR, MENNELL & MILLION, 2021; KNOBLAUCH & LÖW, 2017). The benefit of the refiguration of space concept stems from the fact that it is able grasp spatial relations of any order and across various scales. Moreover, just like the multi-

spatial management framework, it operates simultaneously alongside different understandings of space. Let us take a look at how mediatization, translocalization, and polycontexturalization can help here:

- *Mediatization* points to the importance of communicative structure and agency and reminds us that the internationalization decision affects not only present but also absent locations.
- *Translocalization* accentuates the fact that decision makers and agents in senior positions are highly cosmopolitan, mobile, and therefore embedded in multiple locations at once.
- *Polycontexturalization* entails diverse institutional orders or frames in which decision makers are situated. [78]

The internationalization or globalization of knowledge-intensive firms like the aforementioned consulting and law firms is often accompanied by contributors as the need to transfer different types of knowledge via new means of communication and agency. Whether or not these new means of communication can help to transfer tacit, sticky, or place-bound knowledge is another question. The genuine novelty of mediatization underlines the fact that the decision to internationalize affects both present and absent locations. Here, the "24/7 metaphor" within internationalized firms able to serve their clients "anytime, anywhere" by having affiliated offices in so-called world cities (BEAVERSTOCK, SMITH & TAYLOR, 2000) is an appropriate expression. In other words, they offer novel opportunities to (un)intentionally affect (absent) spaces. Moreover, the increased mobility of decision makers and agents in (abroad) senior positions—often called "expatriates" (Talent Mobility 2020 Report by PRICEWATERHOUSECOOPERS INTERNATIONAL, 2010; BEAVERSTOCK, 2017) leads to increased connectivity between spaces pointing to translocalization. Interestingly, despite the increased connectivity between spaces, the semantic content of actual individual location is also regaining in significance. The workplace design, the semiotic or aesthetic context of locations or places—for example, as event-driven third places or festival spaces—is becoming a crucial factor in spatial field configurations (LANGE et al., 2014; OLDENBOURG, 2001; RICHARDS & JARMAN, 2021). All in all, some circumstances point to the "multilocality," "multiplicity," or "multi-landscapability" effects of formerly situated localization or internationalization decisions. This reminds us of BOHM's (1980) topological figure of economy as being in two places at once: economic objects are bifocal, having both a point and wave form. Although the refiguration of spaces provides a powerful framework with three distinct spatial realities to properly understand current international decisions, it lacks a clear distinction regarding the utilization of spatial concepts (e.g., location, context, etc.) and coherent terminology (e.g., whereas translocalization portrays a rather relational (individual-individual) coupling of spaces in KNOBLAUCH's and LÖW's (2017) framework, the "localization" part of the term gives the impression that it can be associated with a relative concept of space, at least in regional economics and economic geography). I, therefore, propose the term

"transplicity," in reference to "transplaces" as places where a recurrent coupling of active agents takes place. [79]

### 5.2 Macro-economic perspective: World trade interdependencies

World trade interdependencies (i.e., economic globalization) have been another fundamental research object in both regional economics and economic geography. In particular, contributors to regional growth and development theory focus on spatial aspects of economic growth and the spatial distribution and exchange of land, labor, and capital across various scales and among different economic entities (CAPELLO, 2012; ECKEY, 2008). This research angle and objective constitutes a second pillow in both subdisciplines and is the macro-economic counterpart to location theory (KULKE, 2004; SCHÄTZL, 1978; SCHÖLER, 2005). *World trade interdependencies* or *economic globalization* has many dimensions and is probably the most important spatial phenomenon leading to a possible refiguration of spaces. All three main ingredients in this realm—*mediatization* (communication between locations), *polycontexturalization* (multiple framing of locations), and *translocalization* (multiple exposure of locations)—can be of particular interest for understanding this phenomenon. As mentioned above, regional economists and economic geographers have approached these developments in different ways. [80]

A widely accepted bottom line in that realm is that growth rates in countries with intensive *reciprocal trade relations* are higher than those in closed or isolated economies. These economies are the result of both intensified trade relations and trade liberalization (KRUGMAN & OBSTFELD, 2000 [1987]). Early advocates of approaches in classic and neoclassical economics or foreign trade theory—which constitute a mutual heritage in both subdisciplines—analyzed determinants for the existence, structure or direction of international trade and international factor migration and their implications on domestic welfare and income distribution. Their theories on absolute and comparative advantages (RICARDO, 1817; SMITH, 1776), the factor-price equalization theorem (HECKSCHER, 1919; OHLIN, 1933), or the (non-)availability approach (KRAVIS, 1956) form the basis for explaining trade predominantly between two countries based on different specializations and endowment effects on or mobility of available goods. In later approaches, which were mostly driven by regional economics, researchers addressed growth opportunities for countries based on exports (export-based theory, NORTH, 1955) or the optimization of spatial pricing and tariffs (BENSON & HARTIGAN, 1983). Despite progression in the models' complexities and more realistic assumptions, most approaches designed by economic theorists were only two-good and two-country aggregate models. All these approaches originated in absolute space (as numbers, points, and diagrams) and became significant as economic entities (e.g., as countries) as they were allocated economic meaning in relative spaces. [81]

To put it in the words of VON BÖVENTER (1975): "within regional economics one could distinguish between 'pure and exact' regional theory [...], on the one hand, and 'applied regional theory' which is inexact [...] on the other hand" (p.3). If the

idea of regional growth and development are developed further beyond traditional production factors (e.g., land, labor, and capital) and their mostly opportunistic and economically driven exchange, trade, and movement of goods across regions or borders based on arbitrage concerning ground rents, real wages, or interest rates, manifold trade interdependencies are conceivable as will become clear in what follows. [82]

The *simultaneous rise of multilateral*—e.g., the General Agreement on Trade Tariffs (GATT), the World Trade Organization (WTO)—, *plurilateral*—e.g., the European Union (EU), the North American Free Trade Agreement (NAFTA)—, and *bilateral trade agreements*—e.g., various Free Trade Agreements (FTAs)—in the real world, however, called for a more fine-grained and elaborate big picture on world trade interdependencies (SUWALA, 2007). One answer was theories of economic integration (LIPSEY, 1960; VINER, 1950), which highlighted "large-scale economies, technological change, as well as the impact of integration on market structure and competition, productivity growth, risk and uncertainty, and investment activity" (BALASSA, 1961, p.117). [83]

Partial explanations were developed by foreign trade theorists into stage models of economic integration emphasizing preferential trade areas (PTA), free trade areas (FTA), customs unions (CU), common markets (CM), and economic unions as forms with increasing levels of economic integration. In general, the degree of economic integration increases starting with PTA, where two (or more) countries agree on preferential access to certain products by reducing tariffs but not by abolishing them completely (which is usually done in FTAs). Whereas PTAs, FTAs, and CUs represent preferential and/or free flows of certain goods, more advanced forms of economic integration such as CMs or economic unions also allow for a preferential or free exchange of production factors (labor, capital). The European Union is by far the area with the most intensive economic integration (economic union) permitting freedom of movement for workers, rights of establishment of any economic entities, and free movement of (financial) services (see KULKE, 2004, for a good summary; KULKE & SUWALA, 2015). A practical measure, originally adopted by the European Committee for Banking Standards (ECBS), for the simpler movement of capital is the International Bank Account Number (IBAN), an internationally agreed system used to identify bank accounts across national borders to facilitate the communication and processing of cross-border transactions. [84]

Plurilateral trade agreements—for example, COMESA (Common Market for Eastern and Southern Africa) or AFTA (ASEAN Free Trade Area)—and multilateral trade agreements—for example, GATT, which is the predecessor of the WTO—are expressions of framework economic integration among certain regional trade blocs or unified under a global umbrella. Within the framework of the WTO, for example, five fundamental guiding principles regulate economic exchange (KULKE & SUWALA, 2015; SUWALA, 2007):

- The most-favored-nation treatment principle (GATT 1947, Article I) obliges WTO members to immediately and unconditionally grant any other WTO member and its nationals any advantage they grant to a trading partner in terms of trading goods (WORLD TRADE ORGANIZATION, 1998, p.31).
- The principle of national treatment (GATT 1947, Article III) prohibits WTO members from treating foreign goods and their suppliers less favorably than domestic goods and their suppliers (p.34).
- Transparency (GATT 1947, Article X) calls for regulations and restrictions on foreign trade accessible to anyone by publishing these rules and often requires WTO members to notify the WTO Secretariat of any changes (p.40).
- The WTO—established as the successor to the GATT on January 1, 1995—is a negotiating forum that serves to dismantle all kinds of trade barriers in favor of liberalization (p.6).
- The principle of reciprocity establishes a system of multilateral concessions, where concessions granted between states should be equitable and balanced (p.31). [85]

For empirical research, the question arises of *how to depict such complex interdependencies?* Some ideas have been developed to assess, for example, the level of economic integration within the European Union. The EU-Integration-Index was designed by researchers to describe and rank the economic integration of certain members in the European Union (KÖNIG & OHR, 2013). With regard to political events, there are different types of this index. The EU-15 or 25-Index, for example, has been used to determine the individual degree of European integration for each member state of the old EU-15 (later 25) countries every year since 1999 based on a principal component analysis (PCA). Moreover, the index is subdivided into partial measures like EU-trade interdependencies, EU-homogeneity, EU-symmetry, and EU-conformity to assess the following circumstances:

- the European single market;
- the level of economic homogeneity between the member states;
- the degree of correlated business cycles;
- the members' compliance with common institutional achievements (EMU and Schengen) and the *acquis communautaire* (KÖNIG & OHR, 2012). [86]

Some of the aforementioned principles (e.g., freedom of movement for workers, openness to trade with capital, most-favored-nation principle) are approximated by indicators such as "completed infringement proceedings via the European Court of Justice (ECJ) verdict in the field of the EU single market" or "consumer tax rate" (KÖNIG & OHR, 2013, p.1084). These ideas are grounded in relative conceptions of space and allow for relatively good comparative research that also takes into account the increased availability of regional data, the establishment of indices using advanced methods—for example, the aforementioned EU-Integration-Index (KÖNIG & OHR, 2012), or other globalization indices (A.T. KEARNEY & FOREIGN POLICY, 2002; DREHER, 2006). [87]

However, the contemporary picture of analysts of world trade interdependencies is much more complex than it is portrayed in most aggregated indicator-based considerations (e.g., integration indices). Figure 4, for instance, shows European countries and their multi-layered economic and political agreements. Let us consider the Republic of Ireland, for example. It is a member of the Council of Europe—a human rights organization working to uphold human rights, democracy, and the rule of law in Europe—, the European Union Customs Union, the European Economic Area—an international agreement extending the EU single market to non-EU member parties—, the European Union—a political and economic union of currently 28 member states (as of September 2019)—, and the Eurozone—a monetary union of 19 of the 28 EU member states that adopted the euro (€) as a common currency and legal tender—, but not the Schengen Area—an area comprising 26 European states where all types of border control at their mutual borders have been officially abolished. The area generally functions as a single jurisdiction for international travel purposes, including a common visa policy. The only other country with identical political and economic ties in Europe is the Republic of Cyprus. This points to the multiple embeddings of countries/their representatives and their manifold and idiosyncratic contexts (BEYERS, 2005). Moreover, it shows innumerable perspectives and interdependencies at both the bi- and plurilateral level. In this realm, not only country-country interdependencies (relational view), but also country-space-country interdependencies (topical view) are conceivable.

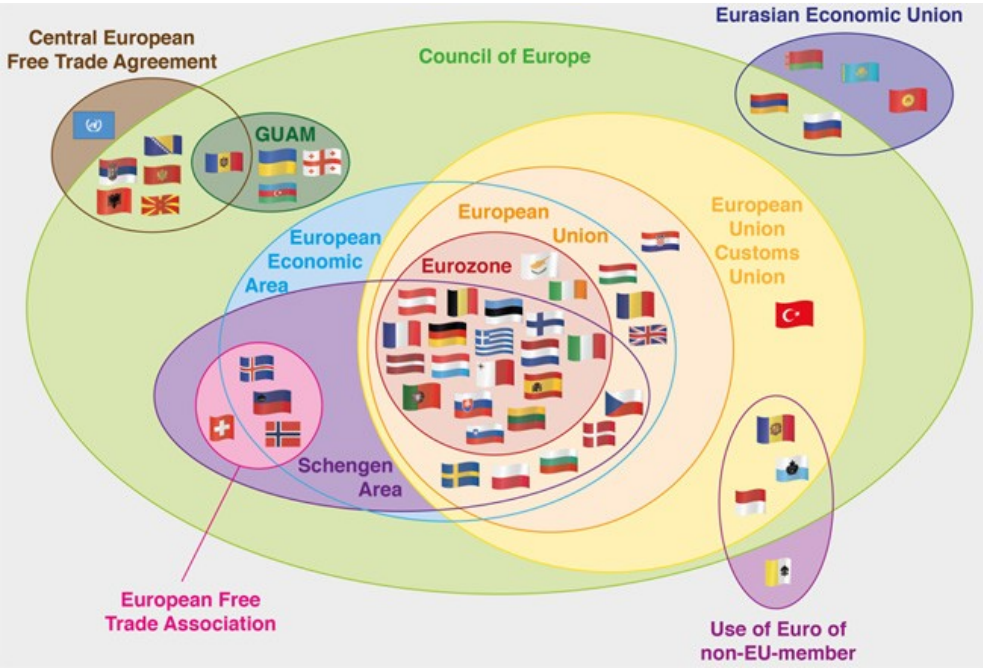



Figure 4: Trade polycontextualization of European countries in 2015 [88]

Of course, world trade interdependencies are conceptualized by observers to have multifaceted and partial manifestations beyond purely economic issues (for various and unusual examples, see LE MONDE DIPLOMATIQUE, 2015). Some economic geographers have introduced novel approaches based on relational

conceptions of space as relational upgrading in global value networks to comprehend these partial explanations when assessing trade interdependencies (GLÜCKLER & PANITZ, 2016). However, not only do generalizations and comparisons become increasingly difficult, but also conceptualizing relationality within trade interdependencies is extremely complex as various perspectives of economic entities have to be taken into account. LE MONDE DIPLOMATIQUE (2015), for instance, portrayed and illustrated "the world views" and exchanged patterns of various countries such as China and India, which, of course, heavily depended on both manifold circumstances (historical, cultural, social) beyond the economic rationales and the eye of the beholder (pp.202-205). [89]

Authors who proposed the refiguration of space framework and, in particular, polycontexturalization and translocalization provided helpful insights here. *Polycontextualization* expresses de facto these diverse institutional orders or frames that occur simultaneously at the country level (Figure 4). Here, novel measures like multidimensional indexes of integration efforts (KÖNIG, 2017; PARK & CLAVERIA, 2018) might be an interesting methodology to depict these circumstances. *Translocalization* describes that agents are not only embedded in places, but also exposed to circulation linking different places. Ideas and studies involving the multiple embeddedness of senior officials in supranational European institutions who deal with these trade treaties mirror these efforts (BEYERS, 2005). The challenging part within the macro-economic perspective is how to conceptualize a kind of "structural relationality" that is genuinely relational and deals with cities, regions, and/or countries as substitutes for agents. In this realm, McCANN and WARD (2010) underlined that

> "the urban region [or any other spatial entity] is, thus, a social and political product that cannot be understood without reference to its relations with various other scales. Yet, to study how this social production gets done involves the study of a whole series of very specific and situated interactions, practices, performances, and negotiations" (p.177). [90]

What sounds logical at first sight is almost a Herculean task when predominantly centered around human agency as the origin of relational space and scalar entities. Although the refiguration of spaces provides a framework that is able to grasp spatial relations of any order and across various scales while perpetuating some rudimentary spatial categories such as locality or place (COULDRY & HEPP, 2016), I would like to make clear here that space itself in a topical sense can play a crucial role as an intermediating entity. This call, to repeat the very rationale behind the refiguration of space framework, is echoed by KNOBLAUCH and LÖW (2017), who maintained that "space is not just an accidental aspect but a basic feature of sociality, spatiality is central to the analysis of refiguration" (p.11), albeit in a very abstract way. [91]

Similar concerns as those from a micro-economic view hold true here. Although the refiguration of spaces provides a powerful framework with three distinct spatial realities to properly understand current world trade interdependencies, it lacks a clear distinction regarding the utilization of spatial concepts (e.g., location,

context, etc.) and coherent and consistent terminology. Apart from that, ideas on how to deal with large, regionalized databases (e.g., panels) are warmly welcome. Suggestions can already be found within the subdisciplines themselves. The concept of *(un)related varieties* opens up new possibilities for how to analyze *intangible world trade interdependences* (e.g., knowledge spillovers). In its original take, knowledge spillovers are linked with economic development in the concept from (evolutionary) economic geography. The rationale is that closely related industries (e.g., traditions in electronics might lead to e-vehicles) within a region unfold a cognitive potential for learning opportunities for both the growth of existing industries and the emergence of new industries. Methodologically, related variety is estimated through an entropy measure that compares employment in five-digit industries within each two-digit classes (as an average) and unrelated variety uses an entropy measure comparing employment across two-digit classes with certain industrial classifications (e.g., NACE, *nomenclature statistique des activités économiques dans la Communauté européenne* [Statistical classification of economic activities in the European Community]). By extending this idea to whole nations and combining it with other methods, researchers might use the concept to pave the way for the selection of investment priorities for future trade specializations and the diversification of entire countries (FRENKEN, VAN OORT & VERBURG, 2007; SUWALA & MICEK, 2018). [92]

## 6. Summary and Conclusion

Which spatial concept should be preferred? And what can we learn from the ideas in the realm of "refiguration of spaces"? With regard to the first three concepts of space introduced in this article, HARVEY stated, "Space is neither absolute, relative or relational in itself, but it can become one or all simultaneously depending on the circumstances" (2006, p.125). Economic geographers and regional economists interpret space differently, depending on the research object, purpose, and goal (GARRETSEN & MARTIN, 2010). A consequence of these various perspectives is a series of mediating spatial concepts attempting to valorize various overlaps and interdependencies. The purpose is to consolidate a "trading zone" capable of permitting a holistic view of space. Examples of such cognitive figures were multidimensional spatial concepts (for an overview, BLOTEVOGEL, 2005) are the "societal space" (BLOTEVOGEL, 2005, p.838), the "matrix space" (LÄPPLE, 1991, p.196), the "spatial context" (MEUSBURGER, 2009, p.114), the "ba" (BRINKHOFF et al., 2015, p.13), and the multispatial management framework that was presented here (SUWALA, 2021; SUWALA & OINAS, 2012), which illustrate a symbiosis of social, cultural, and economic aspects. All in all, those ideas emphasize different ways of interpreting space and are therefore in line with the essence of refiguration of spaces that accentuates the heterogeneous constitution of space through a multiple synthesis while portraying novel opportunities to affect spaces, change relations between spaces, and increase the connectivity between spaces (mediatization, polycontexturalization, and translocalization). Examples in this article can be contemplated to suggest the conclusion for research topics like "internationalization of companies" or "world trade interdependencies" that the

increasing complexity calls for a theoretically advanced and reformulated (or more precisely: re-figured) conceptualization of space envisioned by the framework. Moreover, it must be noted that, despite considerable progress in recent research, "common knowledge" in textbooks is lagging behind for various reasons, although it has a long-lasting effect on future generations of scholars. The idea in the long run is to overcome theoretical and methodological boundaries of various schools of thought and to develop a kind of "trading zone within the archipelago" not only between economic geography and regional economics, but also between sociological and economic thought and the corresponding concepts of space in general (BARNES, 2006; BARNES & CHRISTOPHERS, 2018). The great challenge here is not to lose the idiosyncrasy and core of the (sub-)discipline while being integrative. [93]

What are the insights gained for comparative research? The notion of (re-)figuration is a very abstract frame capable of understanding "spatial relations of any order and across various scales in the first stance while perpetuating some rudimentary spatial categories such as locality or place" (KNOBLAUCH & LÖW, 2017, p.6). From an economic geography/regional economics perspective, this is double-edged sword. As with every abstract frame that is considered to bridge disciplines, this cognitive framework runs the risk of a broad methodological spectrum. Where *economic geography* has a lot to offer within the *micro-foundation of refigurations of spaces,* working predominately with heterodox methods and various concepts of space (e.g., relational or topical points of view for comparison), *regional economics* allows for progress within the *macro-foundation of refigurations of spaces* through the increased availability of regional and big data or advanced quantitative methods (e.g., manifold indices capturing the "refiguration"). The insights that I have highlighted here may enrich earlier debates in this journal on both mixed methods for management and innovation research (MEISSNER & SPRENGER, 2010; WOLF et al., 2010) or urban studies (STREULE, 2014). Furthermore, economic geography and regional economics can gain from insights made in this journal about relational (TIETEL, 2000) or topical methods (NÆSS, 2016). [94]

Bringing both views together by overcoming the regional economist's dilemma: "to an economist, real life is a special case" (AMIN & THRIFT, 2000, p.4) and the partial approaches in economic geography "not seeing the forest for the trees" could really add to a holistic understanding of space in times where the *constitution of space* is becoming increasingly heterogeneous and *spatial synthesis* is multiplying through novel opportunities to affect spaces, change relations between spaces, and increase the connectivity between spaces—the essential idea behind the refiguration of spaces. [95]

## Acknowledgments

I am thankful to Zachary MÜHLENWEG who did the language-editing, Vanessa ULOTH who did copy-editing and Tom WEBER who sketched some figures for this article.

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## Citation

Suwala, Lech (2021). Concepts of space, refiguration of spaces, and comparative research: Perspectives from economic geography and regional economics [95 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *22*(3), Art. 11, http://dx.doi.org/10.17169/fqs-22.3.3789.